

Tensor Interaction Effect in Dibaryon

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Abstract: The gluon and Goldstone boson induced tensor interaction effect on the dibaryon mass and the D-wave decay width has been studied in the quark delocalization, color screening model. The effective S-D wave transition interactions induced by gluon and Goldstone boson exchanges decrease quickly as the increasing of the channel strangeness. The K and η meson tensor contribution is negligible in this model. No six-quark state in the light flavor world can become a bound one by the help of these tensor interactions except the deuteron. The partial D-wave decay width of $1J^P=\frac{1}{2}2^+$ $N\Omega$ state to spin 0, 1 $\Lambda\Xi$ final state is 20.7 keV and 63.1 keV respectively. It is a very narrow dibaryon resonance and might be detected in the relativistic heavy ion reaction by the existing RHIC detectors through the reconstruction of the $\Lambda\Xi$ vertex mass and the future COMPAS detector at CERN and FAIR project in Germany.

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